

What is claimed is:

1. A method for determining if a pregnant woman is at risk of developing preeclampsia, comprising:

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- (a) culturing human trophoblast cells in the presence of serum or plasma obtained from a pregnant woman to be assessed for risk of developing preeclampsia;
- (b) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the absence of serum or plasma obtained from a pregnant woman to be assessed for risk of developing preeclampsia; and
- (c) comparing viability of cells cultured in (a) with the viability of cells cultured in (b),

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wherein if fewer cells cultured in (a) than cells cultured in (b) are viable, the woman is determined to be at risk of developing preeclampsia.

2. A method for determining if a pregnant woman is at risk of developing preeclampsia, comprising:

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- (a) culturing human trophoblast cells in the presence of (i) anti-Fas antibodies and (ii) serum or plasma obtained from a pregnant woman to be assessed for risk of developing preeclampsia;
- (b) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the absence of serum or plasma obtained from a pregnant woman to be assessed for risk of developing preeclampsia; and
- (c) comparing viability of cells cultured in (a) with the viability of cells cultured in (b),

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wherein if fewer cells cultured in (a) than cells cultured in (b) are viable, the woman is determined to be at risk of developing preeclampsia.

3. A method for determining if a pregnant woman is at risk of developing preeclampsia, comprising:

5 (a) culturing human trophoblast cells in the presence of anti-Fas antibodies;
(b) culturing cells from (a) in the presence of serum or plasma obtained from
a pregnant woman to be assessed for risk of developing preeclampsia;
(c) culturing an equivalent sample of cells from (a) under the same conditions
as cells in (b) but in the absence of serum or plasma obtained from a
10 pregnant woman to be assessed for risk of developing preeclampsia; and
(d) comparing viability of cells cultured in (b) with the viability of cells
cultured in (c),
wherein if fewer cells cultured in (b) than cells cultured in (c) are viable, the
woman is determined to be at risk of developing preeclampsia.

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4. A method for determining if a pregnant woman has preeclampsia, comprising:

(a) culturing human trophoblast cells in the presence of serum or plasma
obtained from a pregnant woman to be assessed for having preeclampsia;
20 (b) culturing an equivalent sample of human trophoblast cells under the same
conditions as cells in (a) but in the absence of serum or plasma obtained
from a pregnant woman to be assessed for having preeclampsia; and
(c) comparing viability of cells cultured in (a) with the viability of cells
cultured in (b),
25 wherein if fewer cells cultured in (a) than cells cultured in (b) are viable, the
woman is determined to have preeclampsia.

5. A method for determining if a pregnant woman has preeclampsia, comprising:

(a) culturing human trophoblast cells in the presence of (i) anti-Fas antibodies and (ii) serum or plasma obtained from a pregnant woman to be assessed for having preeclampsia;

(b) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the absence of serum or plasma obtained from a pregnant woman to be assessed for having preeclampsia; and

(c) comparing viability of cells cultured in (a) with the viability of cells cultured in (b),

wherein if fewer cells cultured in (a) than cells cultured in (b) are viable, the woman is determined to have preeclampsia.

6. The method of claim 1, wherein the pregnant woman is in the first trimester of pregnancy.

7. The method of claim 1, wherein the pregnant woman is in the third trimester of pregnancy.

8. A method for determining if a pregnant woman is at risk of developing preeclampsia, comprising:

(a) culturing human trophoblast cells in the presence of serum or plasma obtained from a pregnant woman to be assessed for risk of developing preeclampsia; and

(b) determining if the cells cultured in (a) undergo apoptosis,

wherein if the cells cultured in (a) undergo apoptosis, the woman is determined to be at risk of developing preeclampsia.

9. The method of claim 8, wherein the pregnant woman is in the first trimester of pregnancy.

10. The method of claim 8, wherein the pregnant woman is in the third trimester of pregnancy.
- 5 11. The method of claim 8, wherein apoptosis is determined in (b) by detecting an apoptotic marker.
12. The method of claim 11, wherein the apoptotic marker is active caspase-3.
- 10 13. The method of claim 12, wherein the active caspase-3 is selected from p17 and p19.
14. The method of claim 1, further comprising:
- 15 (d) determining if cells cultured in (a) undergo apoptosis;
(e) determining if cells cultured in (b) undergo apoptosis,
wherein if more cells cultured in (a) undergo apoptosis than cells cultured in (b), the woman is determined to be at risk of developing preeclampsia.
- 20 15. The method of claim 14, wherein apoptosis is determined by detecting an apoptotic marker.
16. The method of claim 15, wherein the apoptotic marker is active caspase-3.
17. The method of claim 16, wherein the active caspase-3 is p17 or p19.
- 25 18. The method of claim 2, further comprising:
- 30 (d) determining if cells cultured in (a) undergo apoptosis,
(e) determining if cells cultured in (b) undergo apoptosis,
wherein if more cells cultured in (a) undergo apoptosis than cells cultured in (b), the woman is determined to be at risk of developing preeclampsia.

19. The method of claim 18, wherein apoptosis is determined by detecting an apoptotic marker.
- 5 20. The method of claim 19, wherein the apoptotic marker is active caspase-3.
21. The method of claim 20, wherein the active caspase-3 is p17 or p19.
- 10 22. A kit for determining if a pregnant woman is at risk of developing preeclampsia, comprising:
- (a) trophoblast cells;
- (b) growth media; and
- (c) a container for culturing cells from (a).
- 15 23. The method of claim 23, wherein the trophoblast cells are H8 trophoblast cells.
24. The method of claim 1, further comprising:
- 20 (d) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the presence of serum or plasma obtained from a normal control; and
- (e) comparing viability of cells cultured in (a) with the viability of cells
- 25 cultured in (d),
- wherein if fewer cells cultured in (a) than cells cultured in (d) are viable, the woman is at risk of developing preeclampsia.
25. The method of claim 2, further comprising:
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(d) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the presence of serum or plasma obtained from a normal control; and

(e) comparing viability of cells cultured in (a) with the viability of cells cultured in (d),

wherein if fewer cells cultured in (a) than cells cultured in (d) are viable, the woman is at risk of developing preeclampsia.

26. The method of claim 3, further comprising:

(e) culturing an equivalent sample of cells from (a) under the same conditions as cells in (b) but in the presence of serum or plasma obtained from a normal control; and

(f) comparing viability of cells cultured in (b) with the viability of cells cultured in (e),

wherein if fewer cells cultured in (b) than cells cultured in (e) are viable, the woman is at risk of developing preeclampsia.

27. The method of claim 4, further comprising:

(d) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the presence of serum or plasma obtained from a normal control; and

(e) comparing viability of cells cultured in (a) with the viability of cells cultured in (d),

wherein if fewer cells cultured in (a) than cells cultured in (d) are viable, the woman has preeclampsia.

28. The method of claim 5, further comprising:

(d) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the presence of serum or plasma obtained from a normal control; and

(e) comparing viability of cells cultured in (a) with the viability of cells cultured in (d),

wherein if fewer cells cultured in (a) than cells cultured in (d) are viable, the woman has preeclampsia.

29. The method of claim 8, further comprising:

(c) culturing an equivalent sample of human trophoblast cells under the same conditions as cells in (a) but in the presence of serum or plasma obtained from a normal control; and

(d) determining if the cells cultured in (c) undergo apoptosis,

wherein if more cells cultured in (a) undergo apoptosis than cells cultured in (c), the woman is at risk of developing preeclampsia.